



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/759,209

01/20/2004

Hiroyuki Kobayashi

P23857

7753

7055

7590

10/24/2006

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

SMITH, PHILIP ROBERT

ART UNIT

PAPER NUMBER

3739

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

NT

Office Action Summary

Application No.

10/759,209

Applicant(s)

KOBAYASHI, HIROYUKI

Examiner

Philip R. Smith

Art Unit

3739

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

- [01] The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is suggested: "A DIAGNOSIS SUPPORTING DEVICE WHICH CONTROLS THE RESPECTIVE INTENSITIES OF EMITTED EXCITATION LIGHT AND EMITTED REFERENCE LIGHT."

Claim Rejections - 35 USC § 103

- [02] The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
- [03] Claims 1 & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa (6,371,908) in view of Ozawa (6,080,104) and in further view of Higuchi (6,734,894).
- [04] **With regard to claim 1:** Furusawa discloses a diagnosis supporting device connected to an endoscope system that captures an image of a subject faced to the tip of an endoscope to generate special observation image data for displaying a special observation image for diagnosis based on various image data transmitted from the endoscope system, said diagnosis supporting device comprising:
- [04a] a light emitting section ("light source device 12," 4/60) that alternately emits excitation light ("light source (UV light source) 24," 5/26) to excite living

tissue and reference light ("white light source 22," 4/61) to illuminate the subject, said light emitting section including a light source which inherently varies the intensity of light in response to applied voltage;

[04b] a probe ("light guide 20," 4/61) that is inserted through a forceps channel to guide the excitation light and the reference light from a proximal end to a distal end;

[04c] an image data acquiring section ("solid state image sensor (CCD) 17," 4/34) that acquires fluorescent image data generated by the endoscope system ("the RGB image signal... is stored in the memory M1...") when the light emitting section emits the excitation light and acquires reference image data generated by the endoscope system ("and the F image signal... is stored in the memory MF," 10/15) when the light emitting section emits the reference light;

[04d] a light controller ("light source control unit 27," 5/55) that controls the intensity of the excitation light according to [a] first intensity coefficient ("adjusts, in accordance with an instruction... light amounts of... excitation light which are incident into the light guide 20," 5/55) and that controls the intensity of the reference light according to [a] second intensity coefficient ("adjusts, in accordance with an instruction... light amounts of illuminating light ... which are incident into the light guide 20," 5/55);

[04e] a calculating section ("PC14," 5/57) that calculates the first and second

intensity coefficients ("instruction from, for example, PC14," 5/57) according to some first and second operational expressions.

[05] Furusawa does not disclose:

[05a] that the calculating section ("PC14") calculates a first intensity coefficient ("instruction") according to a first operational expression which is based on the maximum brightness level of the fluorescent image data (stored in "MF," as noted above).

[05b] that the calculating section ("PC14") calculates a second intensity coefficient ("instruction") according to a second operational expression which is based on the maximum brightness level of the reference image data (stored in "M1," as noted above).

[05c] an intensity measuring section that extracts the maximum brightness level from the brightness levels of all the pixels in the fluorescent image data and extracts the maximum brightness level from the brightness levels of all the pixels in the reference image data whenever the image signal acquiring section acquires a set of the reference image data and the fluorescent image data;

[05d] that said first and second operational expressions are determined such that the intensities of said excitation light and said reference light increase as the maximum brightness levels of said fluorescent image data and said reference image data decrease.

- [06] Ozawa discloses an intensity measuring section that extracts the maximum brightness level from the brightness levels of all the pixels in the image data ("peak value detecting circuit 63," 1/44), which utilizes an operational expression which is determined such that the intensity of the emitted light increases as the maximum brightness level of the image data decreases ("controls the size of the aperture 67 in accordance with a signal output from the peak value detecting circuit 63," 1/42).
- [07] At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the calculating section disclosed by Furusawa ("PC14") calculate the intensity coefficients ("instruction") according to an operational expression which is based on the maximum brightness level of the image data. A skilled artisan would be motivated to do so in order to "maintain uniform ... peak brightness of the observed image" (1/47).
- [08] Furusawa discloses a light controller, as noted above. Furusawa is silent as to the particular means of controlling the intensity of emitted light, stating only that the "light source control unit 27" may be instructed to do so by the "PC14." Furusawa in view of Ozawa does not disclose that the light controller controls the intensities of said excitation light and said reference light without a variable diaphragm and without a light stop by changing the voltage applied to said light source.
- [09] Higuchi discloses the following in 2/54-59:

The light quantity compensating means may comprise light quantity controlling means for adjusting the outgoing light quantity from a light source during a period immediately before light shielding. The light quantity controlling means may variably control the lamp voltage or the aperture of a light quantity restrictor.

[10] At the time of the invention, it would have been obvious to a person of ordinary skill in the art that in reduction to practice, obvious alternatives to aperture control of light emission be used. Higuchi discloses that lamp voltage control is just such an obvious alternative. A skilled artisan would be motivated to control a lamp voltage, as opposed to installing an aperture, because this requires fewer mechanical parts.

[11] **With regard to claim 3:** Furusawa discloses:

[11a] an affected-area-information acquiring section ("memory unit 40," 7/8) that determines whether a difference between brightness level of a pixel in said reference image data (as shown in Fig. 8, 10/35-44) and brightness level of a pixel in said fluorescent image data at the corresponding position is larger than a predetermined threshold value ("second threshold," as shown in Fig. 11, 10/54-58) or not for all of the pixels in said reference image data whenever said image signal acquiring section acquires a set of said reference image data and said fluorescent image data, and that acquires position information that specifies the positions of the pixels whose differences are larger than said threshold value (as shown in Fig. 13, with reference to 11/16-18);

[11b] an image generating section ("M1," 11/31-34) that generates color image

data ("indicated in blue") for displaying a monochromatic image on a monitor based on said reference image data acquired by said image data acquiring section;

[11c] an image composing section ("VRAM41," 11/42-45) that composes said color image data generated by said image generating section and said position information to convert the pixels on said color image data that are represented by said position information into specified pixels exhibiting a predetermined color ("blue," as noted above); and

[11d] an output section ("monitor 15," 11/43) that outputs the composed color image data composed by said image composing section as special observation image data.

[12] **With regard to claim 4:** Furusawa in view of Ozawa does not disclose that said specific pixels exhibit red. Furusawa discloses that said specific pixels exhibit blue. In reduction to practice, the specific color label may be left to the discretion of a skilled artisan as an obvious design choice.

[13] **With regard to claim 5:** Furusawa discloses a "light guide 20," which does not necessarily consist of a number of optical fibers that are bundled up with one another. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. A skilled artisan would be

motivated to do so in order to provide more light.

Response to Arguments

[14] Applicant's arguments filed 9/1/2006 have been fully considered but they are not persuasive.

[15] Applicant firstly contends that "the Official Action relies on features in OZAWA of controlling "the size of the aperture 67" in accordance with a signal output from the peak value detecting circuit 63." It is respectfully maintained that the "aperture 67" was not combined into the Furusawa reference. Instead, it was an intensity measuring section ("peak value detecting circuit 63") and an operating expression which negatively correlated intensity of emitted light with maximum brightness which was combined into the Furusawa reference (see Office action, paragraph [07]). The controlling of the "size of the aperture 67" is not referenced so as to combine the aperture with the invention of Furusawa; it is referenced simply to illustrate the operating expression taught by Ozawa; and to show that aperture control is a known means of light intensity adjustment.

[16] With regard to Higuchi, Applicant contends that "the only motivation to modify FURUSAWA and OZAWA with the teachings of HIGUCHI in the manner asserted in the Official Action is the improper motivation to obtain Applicant's claimed combination in hindsight." In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that so long as a conclusion of obviousness takes into account only knowledge which was within the level of ordinary skill at

Art Unit: 3739

the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a conclusion is proper. *In re McLaughlin*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971). Higuchi, as recited, shows that voltage regulation and aperture control are well-known alternatives in the art of endoscope illumination. It is judged that a skilled artisan would recognize that controlling a lamp voltage, as opposed to installing an aperture, is advantageous because it requires fewer mechanical parts (see paragraph [16] of the outstanding Office action).

- [17] Applicant further contends that "the voltage control in HIGUCHI is only disclosed to be controlled with respect to a single type of light, and not with respect to both 'excitation light' and 'reference light.'" In accordance with the outstanding Office action, it is Furusawa who discloses emission control of both excitation light and reference light. Higuchi teaches a means for controlling emission.

Conclusion

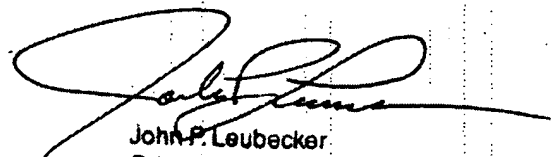
- [18] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

- [19] A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory

Art Unit: 3739

period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

- [20] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip R. Smith whose telephone number is (571) 272 6087 and whose email address is philip.smith@uspto.gov. The examiner can normally be reached between 9:00am and 5:00pm.
- [21] If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on (571) 272 4764.
- [22] Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John P. Leubecker
Primary Examiner